Abstract S79 Figure 1 24-hour cough frequency in sputum smear-positive and smear-negative pulmonary TB and latent TB infection. Error bars: median and IQR

Introduction Patterns of cough in tuberculosis influence transmission of disease yet have been little studied. We report the prevalence, duration, severity and frequency of coughing in tuberculosis.

Method The first part was a retrospective review of the medical records of all individuals diagnosed with pulmonary tuberculosis (PTB) at our hospital during 2012–3. The reported presence and duration of coughing was noted. In the second part of the study, successive patients with an ultimate diagnosis of PTB wore the Leicester Cough Monitor for 24 h prior to commencing treatment. Controls had latent TB infection (LTBI). Participants rated their cough severity from 0–100 with a visual analogue scale (VAS). Cough characteristics were compared with other clinical variables.

Results 108 cases of PTB from 2012–3 were included. 82 reported cough of median (IQR) duration 4 (1–8) weeks. There was a significant association of the presence of cough with TB sputum culture positivity (odds ratio, 11.0; 95% confidence interval, 2.5–50.0) but not gender, smoking, smear positivity, cavitory disease or extent of radiographic change. No clear predictor of the duration of cough was identified and there were too few patients to estimate the effect of TB strain.

Cough frequency was measured in subjects with sputum smear positive PTB (S+; n = 20), smear negative PTB (S-; n = 10) and LTBI (n = 11). Variability was high: median (IQR) cough rates were 238 (121–701), 126 (15–395) and 11 (7–56) coughs/24 h, respectively, and not significantly different for S+ vs. S- (figure). For active TB, cough rates were reduced overnight (2.8 [0.2–12.4] vs. 12.7 [3.3–23.4] coughs/h for night vs. day, respectively; p = 0.01). No effect of smoking was detected, nor was there a correlation between cough frequency and radiographic extent of disease, cavities or time to sputum culture positivity. Cough severity was higher for S+ than S- but also variable and the difference not statistically significant (VAS: 60 [13–94] vs. 22 [1.5–70] respectively; p = 0.41). Severity correlated with cough frequency in active tuberculosis (Spearman's r = 0.60, p = 0.001).

Conclusion Cough in TB reduces overnight and is related to culture positivity. Bacterial burden and extent of disease may not be important. Other determinants of cough await characterisation.

S80

IMPACT OF PEER EDUCATORS ON UPTAKE OF MOBILE X-RAY TUBERCULOSIS SCREENING AT HOMELESS HOSTELS: A CLUSTER RANDOMISED CONTROLLED TRIAL

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Background The pan London “Find and Treat” tuberculosis (TB) service includes a mobile digital X-ray unit (MXU) screening service which has been shown to be cost effective among hard-to-reach groups (homeless people, substance users and prisoners).

This study compared the impact of current practice of hostel staff encouraging MXU screening for TB among homeless people with the addition of peer educators with direct experience of TB and/or homelessness on screening uptake.

Design/methods Between February 2012 and October 2013 London homeless hostels accessing MXU TB screening were randomised to intervention or control arms by minimisation, balancing on hostel size (≤43 beds), and previous screening uptake level (≤50%). Sites with a previous MXU uptake of >80% were excluded.

At intervention sites, peers worked with hostel staff to encourage screening (through contacting and speaking with residents). The primary outcome was the proportion of eligible residents screened for TB. Blinding of participants and observers was not possible due to the nature of the intervention. Analysis was performed by intention to treat (ITT).

Results Of 59 hostels considered for eligibility, 46 were randomised (24 allocated to the control and 22 to the intervention arm – Figure 1). Across all sites, median uptake was 44% (IQR: 26,59). Control hostels had a total of 1192 residents [median uptake 45%, (IQR: 33,55)]. Intervention sites had 1150 residents [median uptake 40%, (IQR: 25,61)]. Using Poisson regression to account for the clustered study design, size of hostel, and previous screening uptake, there was no evidence for peer educators increasing uptake of screening – adjusted risk ratio 0.98% (95% CIs: 0.80,1.20).

Conclusion This study found no evidence for peer educators increasing the uptake of MXU TB screening. The wide

Abstract S80 Figure 1

*All residents apart from those currently on active TB treatment, or those who have had a CXR within the last 6 months

confidence intervals associated with this result mean that we may be missing a 20% effect, which could be explained by a pragmatic study design where sites were not naïve to the intervention as peers had previously been involved in screening sessions at many hostels.

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Trial registration number: ISRCTN17270334.

Predicting and preventing re-admissions in COPD – what is the real cost?

S81 GAIT SPEED IS A PREDICTOR OF MORTALITY FOLLOWING HOSPITALISATION FOR ACUTE EXACERBATIONS OF COPD

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Background Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) are associated with significant morbidity, mortality, and high resource utilisation. More accurate prediction of prognosis following hospital discharge may help optimise clinical management and individualise post-discharge care. Physical performance is potentially amenable to treatment and may help stratify patients at risk of early mortality. In community-dwelling older adults, the 4-metre gait speed (4MGS) is a well-established physical performance measure and a consistent predictor of mortality. We hypothesised that 4MGS at discharge predicts 1 year mortality in patients hospitalised with AECOPD.

Methods 213 patients admitted to one hospital with a primary diagnosis of AECOPD were recruited prospectively. 4MGS was measured on the day of hospital discharge. Data on all-cause mortality at one year were obtained from the patient care summary record, hospital and GP records, and corroborated by patients and their families. Logistic regression models were used to assess the association between 4MGS and death.

Results Baseline characteristics: 111 males/102 females; mean (SD) age 72 (11) years, 4MGS 0.61 ms⁻¹ (0.26) and median (IQR) FEV₁% predicted 35 (26, 49). 35 patients (16%) were not

alive at 1 year. 4MGS at hospital discharge was significantly lower in these patients compared to survivors (mean (SD) 0.47 (0.24) vs 0.63 (0.26) ms⁻¹; $p < 0.001$). All-cause mortality at 1 year increased with decreasing quartiles of 4MGS (Q4 4%; Q3 9%; Q2 21%; Q1 32%; $p < 0.001$). Multivariate logistic regression demonstrated a significant trend in the age adjusted odds of death with decreasing quartiles of gait speed ($p < 0.001$) (see Table 1). Increased odds of death at 1 year were seen with each 0.1 ms⁻¹ decline in gait speed (OR 1.26 (1.06 to 1.49), $p = 0.008$).

Conclusion The 4MGS measured at discharge predicts 1 year mortality in patients hospitalised with acute exacerbation of COPD. Given the simplicity of the 4MGS, it is a potentially useful tool to risk stratify patients with COPD in the acute setting and tailor post discharge care.

S82 AN ECONOMIC EVALUATION OF SELF-MANAGEMENT PROGRAMS DELIVERED AT DISCHARGE AFTER ACUTE EXACERBATION, IN COPD PATIENTS IN THE UK

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Background Self-management interventions delivered to COPD patients at discharge following admission for exacerbation aim to enable patients to better manage and control their symptoms but it is not clear if they are beneficial. Our systematic review concluded that there was no evidence of a reduction in the risk of admissions or mortality but noted a dearth of good quality studies and a direction of effect for readmissions in favour of self-management.

Methods A hypothetical Markov model was built to estimate the cost-effectiveness of self-management interventions in COPD patients recently discharged from hospitals, compared to usual care. It estimated the effect in terms of Quality Adjusted Life Years (QALYs) in a cohort of UK COPD patients, applying a reduced risk of admissions obtained from the hazard ratio of 0.82 (0.50, 1.36) reported in a meta-analysis in a systematic review. Due to uncertainty around this effect, extensive sensitivity analysis was conducted to estimate the likelihood being cost-effective at alternative thresholds.

Results This model found that self-management delivered at discharge was more costly, but resulted in better outcomes, with a £683 cost difference and a gain of 0.0831 QALYs. To be cost-effective it would need to cost £2200 or less if the hazard ratio remained at 0.82. Sensitivity analysis found that self-management had a 68% probability of being cost-effective at a threshold of £20,000 per QALY, with most of this uncertainty being around the effect, duration of effect and cost.

Conclusion If self-management interventions are effective in reducing readmissions for up to two years, they are likely to be cost-effective. This speculative economic model describes the uncertainty around this conclusion.

Abstract S81 Table 1 Multivariable logistic regression model predicting all cause mortality at 1 year by gait speed

	Death 1 year		
	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)	P value
Gait speed (quartiles)			
1 (median 0.32)	11.49 (2.50–52.81)	8.67 (1.81–41.62)	0.007 (<0.001 trend)
2 (median 0.50)	6.55 (1.37–31.21)	4.87 (0.97–24.34)	
3 (median 0.69)	2.55 (0.47–13.78)	2.34 (0.43–12.72)	
4 (median 0.91)	1	1	
Gait speed continuous			
per 0.1 m/s decline	1.32 (1.12–1.55)	1.26 (1.06–1.49)	0.008